

919.43

QUE

Part

And they shall come from the North



and from the East



and from the West



THE BRITISH ASSOCIATION
FOR THE ADVANCEMENT OF
· SCIENCE ·
AUSTRALIAN MEETING
BRISBANE, QUEENSLAND
AUGUST
1914



and from the South

QUEENSLAND

The British Association
for the
Advancement of Science

BRISBANE,
August, 1914.

A. J. CUMMING, GOVT. PRINTER.

Contents.

	PAGE.
ENTRY INTO QUEENSLAND	3
DARLING DOWNS	7
CROSSING THE DOWNS	8
TOOWOOMBA	12
BRISBANE, CAPITAL OF THE STATE	19
PANORAMIC VIEWS OF BRISBANE	21
PARTICULARS OF—	
LECTURES	24
ENTERTAINMENT	24
EXCURSIONS—	
(1) ELECTRIC CAR RIDES	27
(2) MOUNT COOT-THA RESERVE	31
(3) CLEVELAND	32
(4) MEATWORKS ON BRISBANE RIVER	34
(5) IPSWICH RAILWAY WORKSHOPS	39
(6) BLACKALL RANGE AND NAMBOUR	42
(7) GLASSHOUSE MOUNTAINS	47
(8) GYMPIE GOLD FIELD	53
(9) MOUNT MORGAN GOLD AND COPPER MINE	57
(10) DULACCA PRICKLY-PEAR EXPERIMENTAL STATION	61
INTERSTATE TRAIN ARRANGEMENTS	63



The British Association
for the
Advancement of Science

Entry into Queensland.

Wallangarra to Brisbane.

Crossing the parallel of 29 degrees South latitude on the morning of Thursday, 27th August, the Mother State of New South Wales is left behind and Queensland, the great North-Eastern State of Australia, entered. At the border Station of Wallangarra, the break of railway gauge necessitates changing train for Brisbane. Standing on the platform, the difference between the wider standard gauge of 4 feet 8½ inches of the New South Wales lines and the narrower gauge of 3 feet 6 inches of the Queensland lines is most noticeable. Prior to the inauguration of the Australian Federation, Wallangarra was a Customs Border Station and a scene of animation characterised the arrival and departure of the Interstate trains. Here a height of 2,876 feet above sea level is attained, and the surrounding country is of a mountainous nature, the spurs of the Main Dividing Range between the two States being clearly in evidence.



WALLANGARRA RAILWAY STATION, QUEENSLAND BORDER.

After leaving Wallangarra the country continues of a rugged nature, being well timbered and for the most part given up to cattle rearing. Here and there may be noted a few orchards in the making, while glimpses of the receding mountain peaks are obtainable, notable among which is Bald Mountain, a huge granite formation, 4,070 feet above sea level.

After an hour's run Stanthorpe, a recognised sanatorium of the State, is reached. The geological formation of the whole locality is granite, and tourists, taking in a superficial survey of it from the train, cannot help noticing the prevalence of the huge boulders lying about in all forms and sizes. The surrounding country is admirably adapted to fruit growing,

deciduous fruits and grapes growing to perfection. The soil is for the most part decomposed granite, of which the belt extends for 800 square miles about the town. There are over 2,000 acres of fruit-bearing land under cultivation and much attention is now being paid to vegetable growing. Large deposits of stream tin abound in the neighbouring watercourses and numbers of hydraulic sluicing and dredging plants have already been installed. Silver, copper, gold, wolfram, and molybdenite deposits also add to the mineral wealth of this district.

From Stanthorpe the journey is continued northward and at "The Summit" the highest elevation of 3,023 feet is reached. Passing through granite boulder-strewn country, dotted here and there with the settlers' orchards laid out with geometrical precision—their leafy boughs already beginning to bear down under the weight of the young fruit—the township of Warwick, nestling at the foothills, is at length reached.



POST OFFICE, WARWICK, SOUTH QUEENSLAND.



General View of Stanthorpe, South Queensland.

The Darling Downs.

It is here that the wonderful stretch of immensely fertile country immortalised by Alan Cunningham, the great botanist with a penchant for exploration, and named by him the Darling Downs as a compliment to the then Governor of New South Wales, is entered upon. Although Cunningham, the first white man, stood and surveyed the Downs in 1827, it was not until 1840 that Patrick Leslie, a pioneer grazier from over the border, effected the first settlement.

Warwick is a prosperous and thriving town, having been incorporated in 1861, and is the centre from which railways radiate to Killarney, Maryvale, and Dirranbandi, tapping country of great agricultural and pastoral wealth. The wide streets of the town are lined with beautiful trees, well-kept side-walks, pretty and extensive botanical gardens, parks and recreation grounds. Canadian and English elms, the flame tree, mountain ash, English oak, plane, fir, pepperina, poplar, cedar, and other trees line the side-walks and avenues beside the parks.

However, the pleasure of a visit to Warwick is not consummated unless the trip to Killarney, some 28 miles by rail, is undertaken. From the outset the trip is most interesting, but, for picturesque blending of Nature's rural scenery with man's industry, the region of Emu Vale and Danderoo has nothing to compare with it in the Commonwealth.



SWAN CREEK, KILLARNEY RAILWAY, DARLING DOWNS.

No photograph can give any but an utterly inadequate conception of its loveliness. A mighty painter, perhaps, could convey some just impression of the subject, but the perfection of the picture can only be realised by gazing on the scene itself.

Magnificent views are obtainable from Mount Leslie, which stands close beside Killarney, and from Wilson's Peak, a sentinel mountain reached by the Condamine Gorge.

Crossing the Downs.

The train journey across that part of "the Garden of Queensland" which lies between Warwick and Toowoomba has been, to use a

favourite colloquialism, "an eye-opener" to many thousands of oversea travellers. The total area of the Darling Downs is something over 4,000,000 acres of chocolate and black soil, consisting in the main of decomposed basalt.

There is no mere surface richness about the Darling Downs soil. It remains of the same quality to a depth of from 4 feet to 60 feet and even much deeper. In the whole of the area there is no sterile land, and the portions unsuitable for intense cultivation are of very insignificant extent. The area is well watered by streams which have their source in the Ranges, and at almost any part of it water is obtainable at a comparatively shallow depth. The average rainfall is upwards of 30 inches; the heaviest falls occur between January and March. The mean maximum temperature is 83.8, the mean minimum 38.9 degrees.



MAIN RANGE, TOOWOOMBA.



PINEAPPLE FARM, WOOMBIE, N.C. LINE.

Scientists who have busied themselves in piecing together the prehistoric story of Australia agree that the Darling Downs area has been subject to several extraordinary changes. The æons which have passed since it first rose above the level of the sea as the result of volcanic disturbance and the subsequent æons in which it was subject to further volcanic action are immeasurable. The coal beds which have been discovered here and there have shown that vast ferns of a species not now existent must once have grown upon its surface, and there is also abundant evidence to prove that it had been later either wholly covered by the waters of an inland sea or partially by groups of lakes. Scientific belief further attaches to a theory that this region, where now lives a thriving community of farmers, also knew an age in which it was mere



HARVESTING WHEAT, DARLING DOWNS.

marsh land, with a coarse reedy vegetation, among which wandered huge animals of which now only some scattered fossil bones remain. Débris of shells of many kinds as well as the fossil bones of diprotodons have been discovered at depths above and below 60 feet; Clifton, Dalby, Emu Creek, Gowrie Creek, and other creeks being localities which have furnished a prehistoric tale. On the journey across one cannot but help being struck by the abounding prosperity of the settlers in this much favoured district. On either hand well-tilled farms, with the waving wheat now forming into ear, the maize plots in various stages of growth, and the verdant hues of the lucerne fields meet the eye, while sleek kine graze in sweet contentment in the evening sunlight. 'Tis truly a prosperous tract.



POST OFFICE, TOOWOOMBA, DARLING DOWNS.

Toowoomba.

There is not in all Australia a more beautiful or more interestingly situated inland city than Toowoomba. Its natural advantages make it pre-eminent in beauty, its proximity to the richest and largest agricultural area in the Commonwealth assures its importance and prosperity. Statistics have an eloquent voice, and statistics for many years have proclaimed Toowoomba's substantiality and solvency. Year by year its population increases; in its marts and at its Central Railway Depôt are great daily evidences of the fertility immediately at hand and of the enterprise and industry of those who have made their homes in the areas adjoining.

Timber, agricultural and dairy products—wheat, maize, lucerne, oats, fruit, wine, cream, butter, poultry, eggs—such are the primary productions of the Toowoomba district, and one sees demonstrations in their development in drives through Drayton, Middle Ridge, where there is a large German population, and Harlaxton. Despite the evidence of quick cheerful industry, the observer experiences a feeling of profound peace. Amid such harmonious scenes Queensland is rearing a nation worthy of the land.

Being the central depôt for a number of branch railways, Toowoomba offers to the interested visitor railway trips to Crow's Nest, Pittsworth, Milmerran, Goombungee, Gowrie, Oakey, and Jondaryan, all interesting districts.

On leaving Toowoomba, the descent of the Main Range is commenced.

Passing over a track so winding as to be at times almost spiral the train moves on with serpentine motion, descending lower and lower through mountain scenes, dashing through narrow tunnels and cuttings which exasperatingly, though momentarily, shut out the scenic feast, and even at each receding altitude the traveller may gaze far, far away over a vast expanse of undulating grassed and wooded ranges to which distance lends varying colours ranging from olive green to grey, from the ocean's blue to the violet's purple.



General View of Ipswich, South Queensland.

Almost might one imagine the scene to reveal not *terra firma* and arborescence but the irregular surface of a vast inland sea.

At Spring Bluff, the natural beauties of the scene are added to by the beauty of the trees which shade the railway station—the pale purple-blossomed jacaranda, which is a favourite subject for the brush of Queensland artists.



SCENE ON THE BLACKALL RANGE.

After a run of about 20 miles the foot of the main range is reached and then for the next 30 miles the fertile valley of the Lockyer is



EXPERIMENTAL WHEAT PLOTS, ROMA STATE FARM.

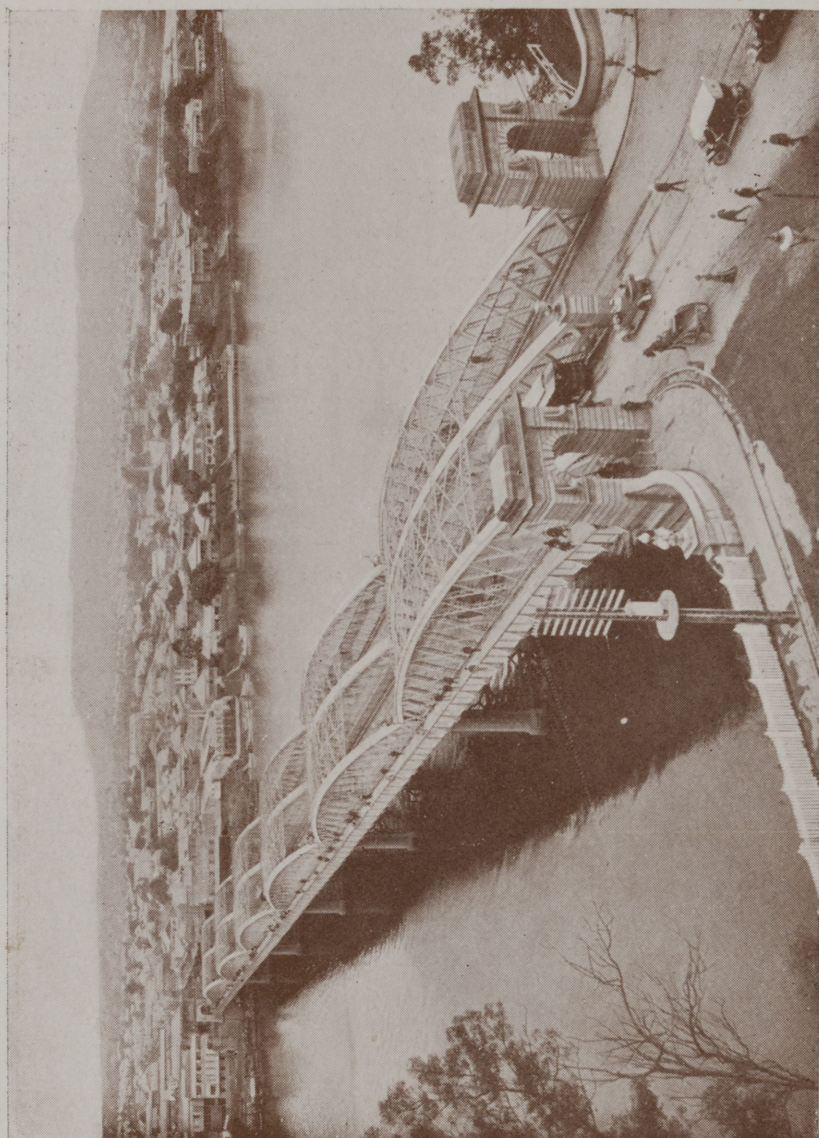
passed through. This well-watered district sustains a large and thrifty farming population who are engaged mainly in the growing of lucerne, maize, dairying and farm produce generally—the two chief centres being Gatton and Laidley. Near Gatton is the Queensland Agricultural College, a Government Institution, the great aim of which is to impart to the students a thoroughly practical training, combined with sufficient theoretical knowledge, to enable a man to till his land to the best advantage as well as to manage it from a commercial point of view.

After leaving Laidley, the Little Liverpool Range is descended and the fertile West Moreton district of Rosewood passed through until

Ipswich is reached. Ipswich, 24 miles from Brisbane, is the commercial capital of this district, and is linked up by branch railway lines with the Brisbane Valley and Fassifern districts, two rich agricultural and dairying centres. The Government Railway Workshops are situated at North Ipswich and find employment for over 1,600 men and apprentices. Nearly all the rolling-stock, including the well-appointed interstate railway cars and a large number of engines, have been turned out at these workshops, which are the foremost of their kind in the Commonwealth. Valuable coal deposits are also extensively worked in the vicinity of the city. Ipswich has always taken a lead in educational matters, the first Boys' Grammar School having been established here.



DAIRYING SCENE, LOCKYER DISTRICT, S.Q.



*Victoria
Bridge,
Brisbane
River.*



BULIMBA REACH.

Brisbane, Capital of Queensland.

Brisbane, the capital of the State of Queensland, and the seat of government, is picturesquely situated on the banks of the beautiful and noble river of the same name. Interest and beauty are added to the city by the large number of charming suburbs, beauty spots, delightful watering-places, and health resorts which surround it. Brisbane has reason to be proud of its many imposing public and mercantile buildings in the city proper, while the residential villas in the suburbs possess architectural beauty of no mean order. Regarded from an industrial and commercial standpoint, the metropolis is the centre of much progress and prosperity, and the expansion made in these directions of recent years has been marvellous.



CITY REACH, BRISBANE RIVER.

There is a remarkable buoyancy in every walk of commercial and industrial life, work is plentiful, the highest wages are paid, and all sections of the community are happy and contented. That Brisbane is destined to figure prominently in the shipping world in the near future is exemplified by the extensive wharfage accommodation that has been, and is being, provided for the berthage of oversea boats. When the Hamilton Basin project is given effect to, Brisbane will be in a position to lay claim to having an almost unbroken stretch of wharves from Pinkenba to Victoria Bridge.

The capital is about twelve miles from the mouth of the river, the entrance thereto being indicated by the Pile Light, 93 feet high, which can be seen by mariners a considerable distance away when lighted at night.

In 1845 there were 812 residents in Brisbane: to-day the population numbers 151,272 within a 10-mile radius. The population of the whole State of Queensland is 660,158.

The salubrity of the climate is emphasised by the lowness of the death-rate, and satisfactory condition of the birth-rate. The former in 1913 was only 13.12 per 1,000 inhabitants, and the latter 34.37 per 1,000. The mean summer temperature is 76.7, and the mean winter temperature 59.4.

Panoramic Views of Brisbane.

The configuration of the country around Brisbane and suburbs is of such a character that numerous coigns of vantage are provided, from which their many charms may be viewed to the fullest advantage. First, the city proper and



QUEENSLAND UNIVERSITY AND RECEPTION ROOMS, BRISBANE.

its many charming suburbs, with a noble river winding round them like a huge silvery-hued ribbon, are brought under the telescopic eyes of the sightseer; then, the delightfully verdant and fertile agricultural districts outside the metropolitan area, with the ranges of mountains in the background; and finally, the island-studded Moreton Bay, with its vast expanse of blue and green tinged waters.

An enumeration of the more easily accessible observation spots is detailed below:—

(1.) The Observatory, Wickham terrace, five minutes' walk up Edward street (or 1d. tram from Queen street). Built in 1829.

(2.) Paddington tram terminus (3d. from Queen street). Half-a-dozen heights are available here, from which magnificent stretches of scenery from Toowong to Moreton Bay can be seen.

(3.) Highgate Hill (3d. Gladstone road tram from Queen street). From the Reservoir reserve towards every point of the compass beautiful views meet the eye.

(4.) Toowong tram terminus (3d. from Queen street). Get out at the terminus, and climb up steps to hill on the right. On a clear morning a grand view is revealed to the sightseer.



VIEW FROM SUMMIT, MOUNT COOT-THA.

(5.) Albion Heights (Clayfield car 3d. from Queen street). Here in this suburban arcadia the beauties of Brisbane are seen to advantage.

(6.) Any of the city towers:—Town Hall (South Brisbane), Parliament House (George street), Executive Buildings (George street).

(7.) Mount Coot-tha, four miles by tram, motor-bus, or motor-car. Take Toowong car to Wool street (off Dean street), and a walk and climb up a well-made road will take the sight-seer to the summit of Mount Coot-tha. Then a magnificent panorama is disclosed—one which amply compensates the “Alpiner” for his or her climb. The dams at the foot of Mount Coot-tha and Mirror Point on Constitution Hill are well worth visiting. Refreshments can be obtained at all hours at the kiosk.

(8.) White's Hill, six miles from Brisbane, can be reached by motor-bus or motor-car. From this elevation an unequalled view of Brisbane and the surrounding country can be gained. The wants of the "inner man and woman" are also provided for here.

Particulars of Sectional Meetings and Public Lectures to be held at Brisbane.

Place.	Time.	Lecturer.	Subject.
--------	-------	-----------	----------

FRIDAY, 28TH AUGUST.

Albert Hall ..	10 a.m.	Mr. A. D. Hall	Tropical Agricultur
	11.30 a.m.	Prof. E. W. Brown	Cosmical Physics
Albert Hall ..	8.30 p.m.	Prof. H. E. Armstrong	Materials of Life
Centennial Hall	8.30 p.m.	Prof. G. W. O. Howe	Wireless Telegraphy

MONDAY, 31ST AUGUST.

Centennial Hall	8.30 p.m.	Sir Edward A. Schäfer	Physiology in General Education
Exhibition ..	8 p.m.	Dr. A. C. Haddon	Decorative Art in Papua

Civic Reception and Government Entertainment.

FRIDAY,
28TH AUGUST. Civic Reception by His Worship the Mayor of Brisbane, Bowen Park, at 3.30 p.m.

MONDAY,
31ST AUGUST. Garden Party by the Hon. the Premier of Queensland, University Grounds, at 3.30 p.m.



Artesian Bore, Charleville, W.Q.



Q.G.S. "LUCINDA."

Excursions

*Arranged for
Members.*

Special Note.

It is notified for the information of members that they will be given an opportunity of making a selection of excursions in which they desire to participate prior to their departure from Sydney. Cards for this purpose will be available at the Reception Room, Sydney, on or before the afternoon of Monday, 24th August. Visitors desirous of joining any excursion are particularly requested to indicate their choice by filling in one of the above-mentioned cards.

Short Excursions near Brisbane.

- (1) Electric Car Rides through City and Environs.
- (2) Mount Coot-tha.
- (3) Cleveland and Redland Bay.
- (4) Meatworks operating on Brisbane River.

One-day Trips.

- (5) Ipswich Railway Workshops.
- (6) Blackall Range to Nambour, to view sugar cultivation and crushing.
- (7.) Glasshouse Mountains.

Week-end Trips.

- (8) Gympie Gold Field.
- (9) Mount Morgan Gold and Copper Mine.
- (10.) Dulacca Prickly-pear Experimental Station, Dulacca.

No. 1.

ELECTRIC CAR RIDES THROUGH CITY AND ENVIRONS OF BRISBANE.

FRIDAY, 28TH AUGUST.	Depart North Quay 2 p.m. in reserved cars for a tour of the Suburbs. The Party will then be taken to Bowen Park in time for the Mayoral Reception at 3.30 p.m.
-------------------------	--

Mr. J. S. Badger, General Manager of the Brisbane Tramways Company, Limited, has generously granted free transportation over his company's lines during the stay of the Overseas Members in Brisbane.



GLADSTONE ROAD CAR TERMINUS.

Prior to 1896 the old horse car system prevailed in Brisbane, and after that date the present company assumed control and ran the first electric car in June, 1897. Brisbane now possesses one of the finest electric tramway services in the Commonwealth. The company has in service over 100 cars, carrying over 115,000 passengers per day. It employs about 750 men, and pays in wages over £100,000 per annum. Cars for all the principal suburbs pass through the main thoroughfare (Queen street) at short intervals, and afford visitors a ready and inexpensive means of seeing the city and surroundings.

Among the more popular routes which the tour will embrace are the following:—

Gladstone Road—

Cars on this road cross the Brisbane River at Victoria Bridge and run over Highgate Hill, from which a splendid view of the city and

suburbs can be obtained. From the heights near the terminus, a delightful glimpse of the river winding its sinuous way westward amongst verdant fields and farms is obtained.

Toowong—

This road is of the switch-back variety, and the car is either climbing up or running down one of the hills along the route.

Paddington—

The terminus of this line is at a considerable elevation, and a very fine view is to be obtained therefrom. Government House is in the immediate vicinity.

Clayfield—

This line runs through one of the most picturesque districts around Brisbane.

Hamilton—

The road runs along the river bank for some distance, and is very popular on that account. The picturesque Ascot Racecourse is at the terminus.

New Farm—

This road runs through a very popular residential suburb, and has its terminus on the river bank, near the Colonial Sugar Company's Refinery, the Brisbane Stevedoring Company's wharf (the berthing place of the Orient Line of Steamers), and Dalgety's wharf and warehouse.



View on Cairns Range, North Queensland.

No. 2.

MOUNT COOT-THA RESERVE, OR ONE-TREE
HILL.

Leave Tourist Bureau, Corner of
Queen and George Streets,
3 p.m.

SATURDAY, 29TH AUGUST. Proceed by motor-car, via River Road; return through Paddington.

Afternoon tea on summit, and re-
turn City 5.30 p.m.

Mount Coot-tha is situated on one of the western spurs of the D'Aguilar Range, being 703 feet high, and distant from the city 4 miles by tram, motor-car, or taxi-cab. A splendid panorama of the city and surrounding country is obtainable from here, it being easily the best observation spot in the metropolitan area. By means of a well-made road, tourists are enabled to ascend Constitution Hill (nearly 800 feet) with ease. From Mirror Point a charming view of the Enoggera Reservoir and the hills surrounding Brookfield and Moggil is obtained. At this elevation there is a third shelter-shed. On the western horizon the rugged beauty of the stretch of mountain scenery, from Tambourine Mountain to Mount Mitchell and Cunningham's Gap, can be seen without the aid of glasses. Mount Coot-tha has an area of 1,500 acres, and is now vested in Trustees as a Reserve for the Public for all time.



CAMPSIE FRUIT FARM, ORMISTON, NEAR CLEVELAND.

No. 3.

CLEVELAND AND REDLAND BAY.

Leave Tourist Bureau, corner of
Queen and George Streets,
2 p.m., motor.

SATURDAY,
29TH AUGUST.

Afternoon tea at Pier Hotel, Cleve-
land, and return City 6 p.m.

The motor drive to Cleveland is one of the most charming that can be taken from the metropolis.

The approach to Cleveland lies past Wellington Point, one of the most charming of rural districts south of the Brisbane River.

The country hereabout slopes very gently from the shaven ridge towards the waters of the

bay. From points of vantage the seascape is a faery scene of exquisite beauty. In the distance looms Moreton Island, austere and sombre in its isolation, and making bold silhouette against the sapphire skyline. Beyond the light-flecked waters of the bay, Cleveland's gleaming roofs and dark-red roads lie in placid calm. At the extreme point stands the Cleveland Lighthouse, like a graceful marble column, pointing its warning finger to the fickle skies; and the ruins of the old pier add picturesqueness and variety to the scene.

And the bluff headline of the point lifts the eyes far away and beyond across the bay, compassing in the survey the island of St. Helena. Hard by, King, Green, Peel, and Mud Islands relieve the eye, with the noble stretch of Stradbroke, full seventy miles in length.

A thriving township and popular watering place is Cleveland. But twenty-three miles by rail from Brisbane, its accessibility has marked it for special favour amongst excursionists.

Cleveland has many and varied attractions for the visitor. It has maintained its rural charm; and long, strong walks may be enjoyed along the umbrageous roads, and hedge-lined lanes, and over its fallow fields. Along the road to Redland Bay the surrounding landscape is pervaded with rich colouring, from the brilliant scarlet of the flamboyant poinciana to the purple blossom of the tender lucerne.



FAT CATTLE FROM KINGAROY DISTRICT, READY FOR MEATWORKS.

No. 4.

MEATWORKS OPERATING ON BRISBANE RIVER.

Embark Q.G.S. "Lucinda," Queen's
Wharf, 8.30 a.m.

MONDAY,
31ST AUGUST,

Inspection Australian Meat Export
Company's Works, The Ter-
races, 10 a.m., and Queens-
land Meat Company's Works,
Pinkenba, at 11.15 a.m.

Return to City 1 p.m.

Queensland, with her 5,322,033 head of cattle, holds undisputed sway as the premier cattle-raising State of the Commonwealth of Australia; her cattle stations are the most extensive, her herds the largest, and the aggregation of her pastoral areas exceeds that of any other State.

With a back-country possessing every facility for fostering the great primary industry of cattle raising, Brisbane, the capital and port, is highly honoured in having located on the banks of the Brisbane River the best equipped and most up-to-date meatworks in the world—that most necessary adjunct for sustaining the great secondary industry of meat freezing and packing.

In the works of the Australian Meat Export Company, Limited, which have been in operation barely three months, one beholds the last word in the scientific treatment and handling of meat. The works are situated on the right bank of the Brisbane River, some seven miles from its mouth, and involved an expenditure of approximately £400,000. The most modern machinery and plant have been erected in an eight-storied reinforced concrete building, and the sanitary arrangements in connection with these new works have been carried out on the most improved methods. Their daily capacity is 500 cattle and 3,000 sheep, and the operations comprise freezing and preserving meats for export.

Further down, on the left bank of the river, at Pinkenba, is situated the works of the Queensland Meat Export Company, Limited, which have a capacity for treating 300 head of cattle daily, or 200 cattle and 2,000 sheep if both are treated at the one time. It can also treat 2,500 sheep daily. The cold storage capacity provides

for 32,000 quarters of beef, or 105,000 carcasses of mutton. Annually about 8,500 tons of frozen meat and 2,160 tons of canned meats are exported to Great Britain, Europe and the East. The cattle are obtained from all parts of Queensland, the average price paid therefor being from 21s. to 25s. per 100 lb.



QUEENSLAND BEEF PASSED BY FEDERAL VETERINARY INSPECTORS
FOR EXPORT.

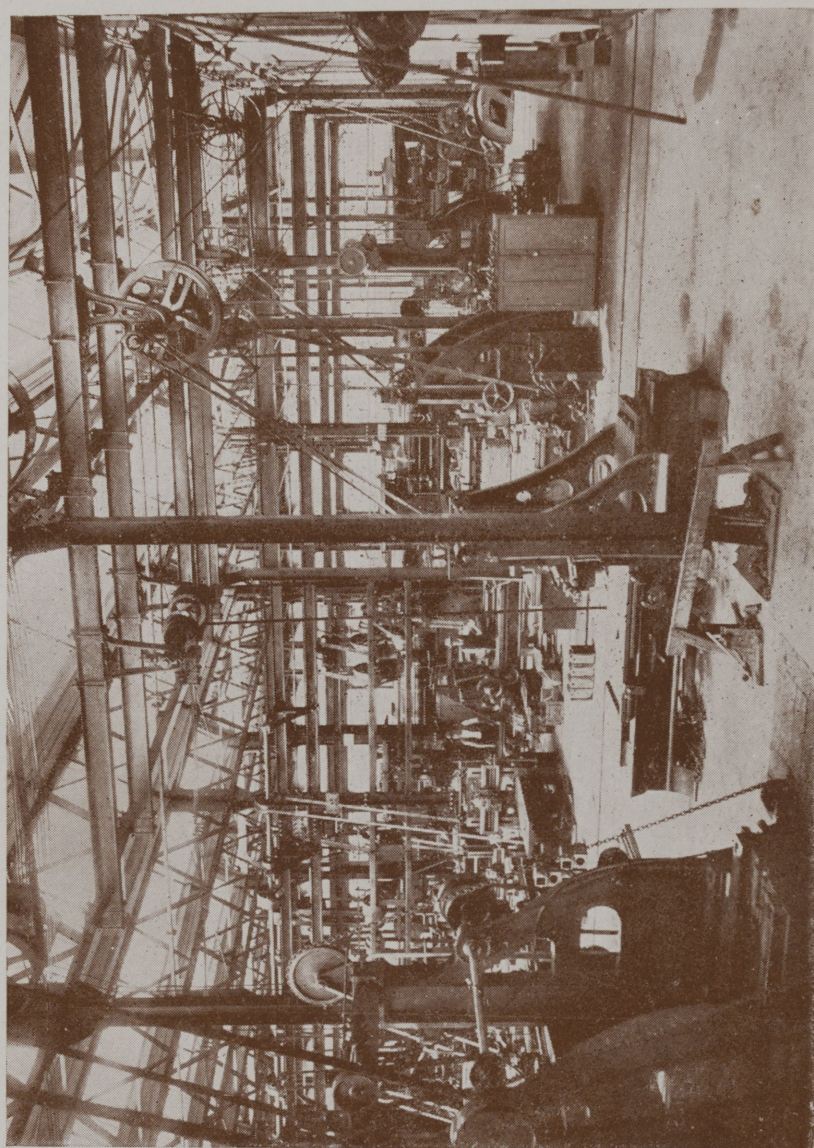
One of the most important points with which a visitor is impressed on going through the different works is the scrupulously careful supervision exercised by the Federal Government

officers in connection with meat slaughtered both for export and home consumption, so as to ensure that no diseased Australian meat is placed on the markets of the world. As soon as a beast is slaughtered and dressed, a searching and thorough examination is made on the carcass. All meat passed by the Federal inspectors for export bears a certificated tag.

Not the least delightful portion of the trip is the outing on the noble, broad, and sinuous Brisbane River.



VANILLA CULTIVATION IN TROPICAL QUEENSLAND,
KAMERUNGA STATE NURSERY, CAIRNS.



*General
View,
Interior,
Railway
Workshops,
Ipswich.*

No. 5.

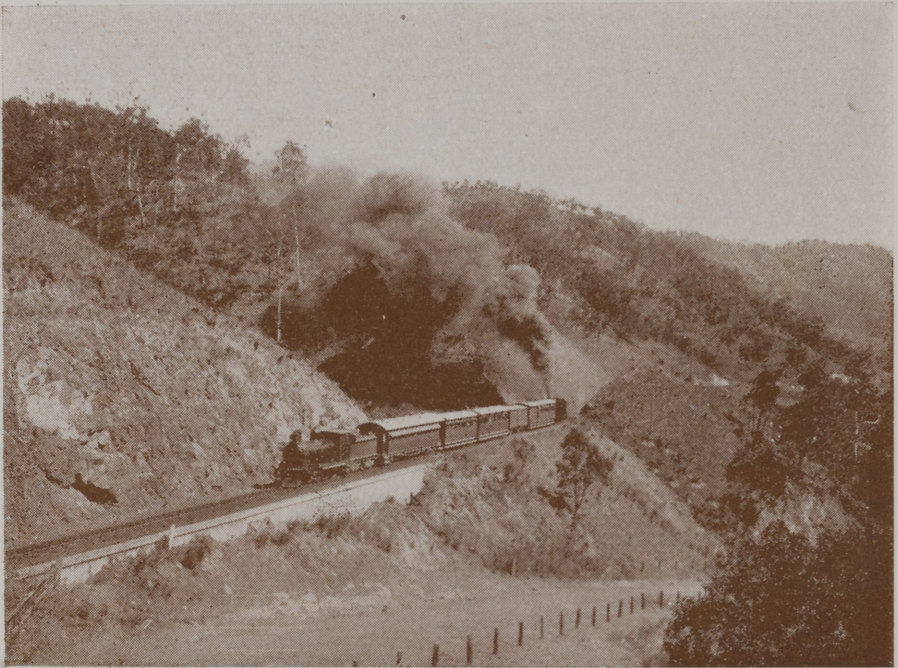
VISIT TO IPSWICH RAILWAY WORKSHOPS
AND DISTRICT.

Leave Brisbane Central Station
SATURDAY, 8 a.m. ; arrive Ipswich 8.48 a.m.
29TH AUGUST. Return by train leaving for Brisbane
at 10 p.m.

On arrival of the party at Ipswich, they will be taken direct by rail to the workshops, and will be the guests of the Commissioner for Railways and the Mayor of Ipswich. The Ipswich Railway Workshops, covering an area of 15 acres, are situated at Ipswich, 24 miles westerly, by rail, from Brisbane, and rank as one of the largest and best equipped in the Commonwealth.

Small as were their beginnings, the Ipswich Railway Workshops have grown to dominant proportions, and in them to-day are manufactured engines, carriages, wagons—in fact, all classes of work connected with rolling-stock. Over £500,000 has been spent on these works, which are now manned by 1,700 hands; yet, with the extension of the railways, the Chief Mechanical Engineer finds himself wedded to the policy of a yearly expansion of the shops, both in the way of extensions to the buildings and additional machinery. Latterly the yearly output from the workshops has been 16 large locomotives, 600 wagons, and 50 carriages, in addition to the vast quantity of repairs and renewals required in the Southern Division.

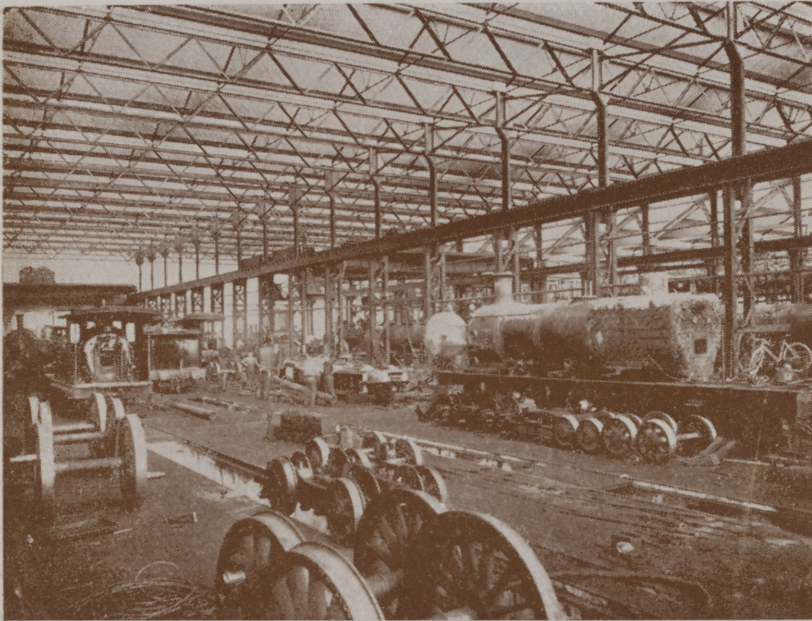
There are perhaps no carriage works in the world in which native timbers of such great variety and beauty of grain and colour are utilised as in that special department of the Ipswich Workshops. There is something particularly artistic in the effect which their use gives to



ABT SYSTEM RACK RAILWAY ASCENDING MOUNT MORGAN.

carriage interiors, an effect which, in association with the washable white covers which spotlessly envelop the chairs and cushions of the parlour cars, suggests the last and highest word in the refinement which may attach to railway travel.

In 1908 the first "B17" mail engine, designed by Mr. Horniblow and built in the Ipswich Workshops under Mr. R. T. Darker, was finished, and its manufacture was followed by a number of others of the same class for passenger and mail traffic. Since this date a



LOCOMOTIVE CONSTRUCTION WORKSHOPS, IPSWICH.

newer type known as the "C 18" (eight wheels coupled) has been designed and constructed at the Workshops, and this engine now represents the heaviest type of locomotive in use for goods traffic.



GENERAL VIEW OF NAMBOUR, N.C. LINE.

No. 6.

BLACKALL RANGE AND NAMBOUR.

Leave Brisbane Central Station by
special train 8.15 a.m., and
arrive Nambour 11.10 a.m.

SATURDAY,
29TH AUGUST, Depart Nambour, 6.40 p.m.

Arrive Brisbane, 9.20 p.m.

On arrival at Nambour, an inspection of the Moreton Central Sugar Mill will be made, giving visitors an opportunity of viewing the crushing and manufacturing of raw sugar. After lunch trips by tramway will be made to the Dulong Range and along Petrie's Creek to the Maroochy River to view the sugar-cane farms and the dense scrub scenery.

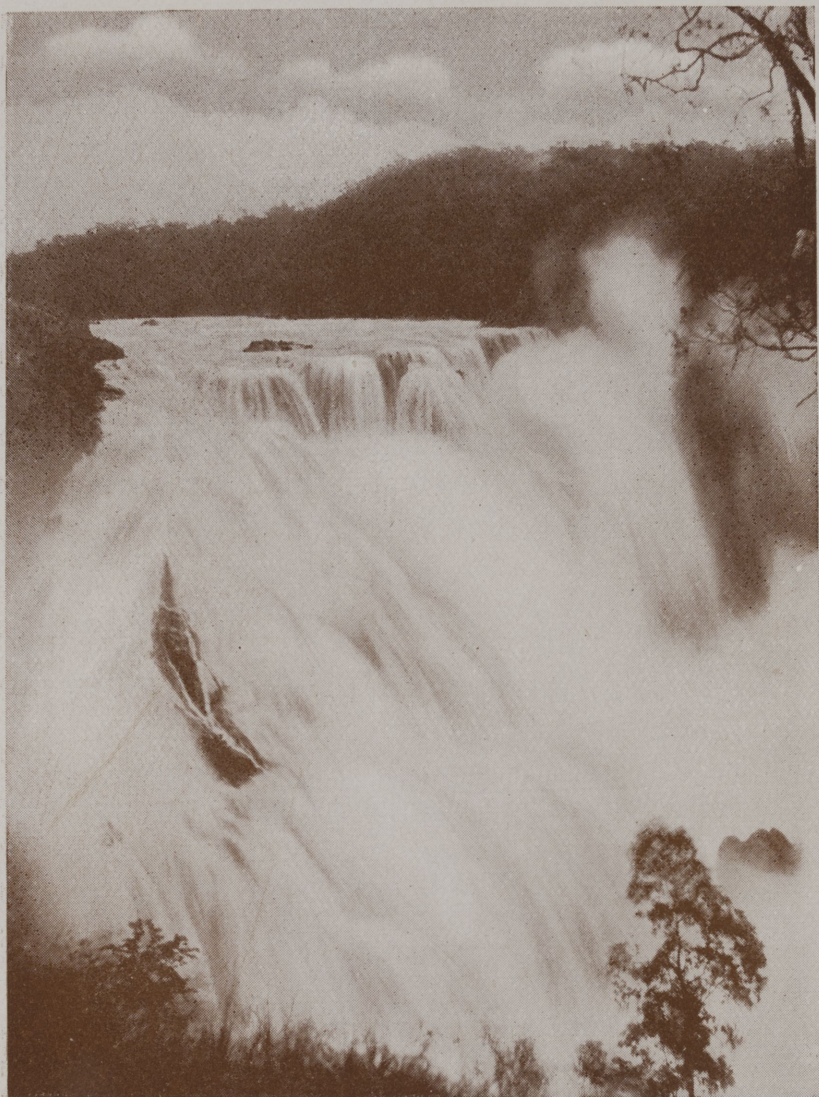
The trip to the Blackall Range, with its wonderful sub-tropical foliage, is one of the most delightful one-day trips that can be taken from the metropolis.

The chain of mountains on the left of the line on the Northern journey is D'Aguilar Range, in which the Pine and Caboolture Rivers take their rise. The Blackall Range is a continuation of the same chain to the North.

After passing Caboolture Station a first view of those peculiar peaks named by Captain Cook the Glass Houses is obtained. The principal of these is Tibrogargan, a bold bluff standing out very prominently close to the line, Coonowrin or Crook Neck, and Beerwah; the latter being the highest of the group with an altitude of 1,760 feet.

On the rather poor sandy soil of this part Grass-trees (*Xanthorrhæa*), with their tall spear-like flower stalks, are much in evidence.

After passing Landsborough, 51 miles, a complete change from the coastal scenery is observed, belts of tropical scrub being passed through. These palm scrubs are a revelation to most of the visitors from other countries. The prolific vegetation, rich in colour and varied in form, cannot fail to impress such. On either hand palms, orchids, and ferns—ground and epiphyte—meet the eye. Here is the graceful Piccabeen (*Archontophoenix Cunninghamii*) with its frond-like leaves, the cabbage palm (*Livistona australis*), and the midgeen (*Bacularia monostachya*), a tall slender palm from which walking-sticks are made.



BARRON FALLS, CAIRNS RAILWAY, NORTH QUEENSLAND.

Here also is the home of two of the Queensland tree-ferns, *Alsophylla australis* and *A. Leichhardtiana* (prickly tree-fern). Epiphyte ferns abound in large numbers, notably the lordly Staghorn (*Platycerium grandis*), and the

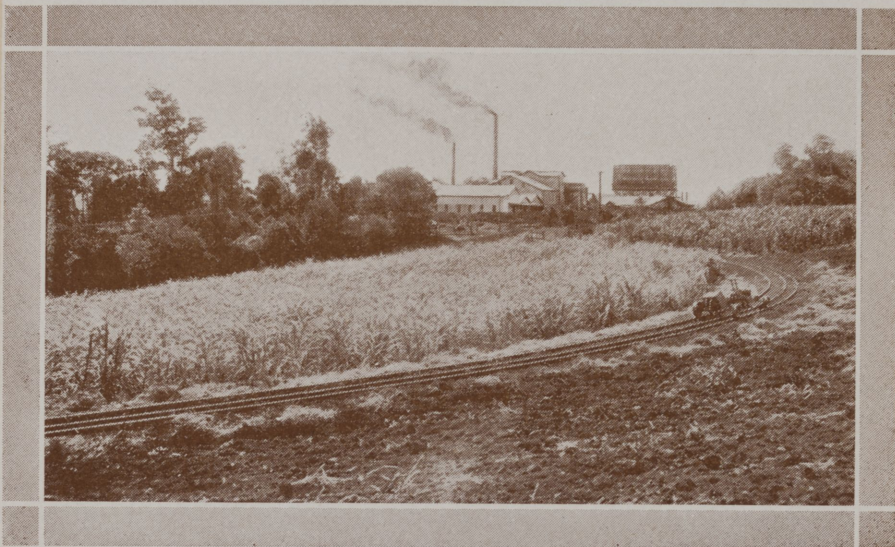
Elk-horn (*P. alcicorne*), the gigantic Bird's-nest (*Asplenium nidus*) with fronds in some cases ten feet long, the Hare's-foot (*Davallia pyxidata*) finding a congenial home in the decayed roots of the Staghorn, and the Scythe fern (*Asplenium falcatum*), all of which are common and may be seen in large quantities growing high up out of reach of the ordinary collector.

Here is also the beautiful but treacherous Stinging-tree (*Laportea*)—of which there are three species, *gigas*, *moroides*, and *photiniphylla*—the leaves of which, if touched, will not be forgotten for many days. The Lawyer Vine (*Calamus Muelleri*), with its hook-like prickles, awaits the careless intruder and brings him up with a round turn. The Cunjevoi (*Alocasia macrorrhiza*), its beautiful green leaves in some cases 2 feet long, with its sheathed yellow flower, grows in great abundance. The root has somewhat the appearance of ginger, but woe betide any person tasting it; he will fancy he has put fire into his mouth.

It will be noted with satisfaction that the authorities have reserved a strip of land along the railway line to preserve the beauties of the natural vegetation for the benefit of tourists.

Nambour is at length reached. Here sugar-cane is extensively grown on the slopes of the range and the banks of the rivers and creeks. A large central sugar-mill in the town deals with

the cane, converting it into raw sugar. Lines of 2-feet tramway extend in all directions through the canefields, climbing to the summit of the range and following the course of the creeks and river.



CHILDERS SUGAR-MILL, ISIS DISTRICT, S.Q.

The Moreton Central Sugar Mill crushes on an average 280 tons of cane per day, yielding 30 tons of raw sugar. In the season it gives employment to 120 men and pays in wages £280 per week. The average price of cane delivered at the mill is £1 1s. 10d. per ton. In 1913 the mill crushed 28,780 tons of cane for 3,287 tons of raw sugar.

No. 7.

GLASSHOUSE MOUNTAINS.

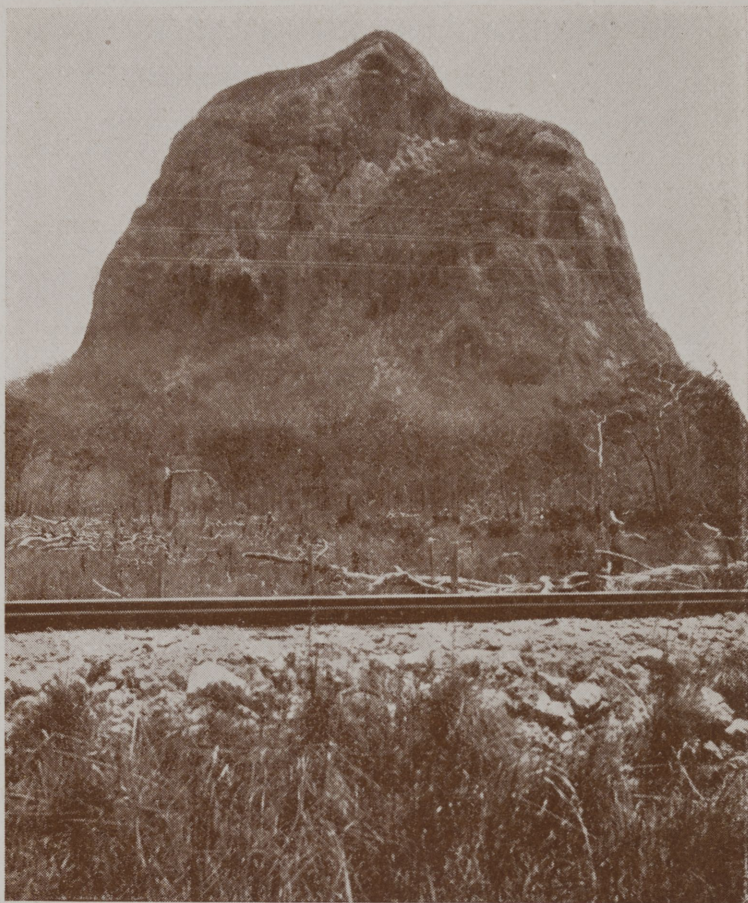
	Leave Brisbane Central Station by special Train 8.15 a.m., and arrive Glass Mountains Station 10.10 a.m.
SATURDAY, 29TH AUGUST.	Depart Glass Mountains 7.25 p.m.; arrive Brisbane 9.20 p.m.

GEOLOGICAL NOTES ON THE GLASSHOUSE MOUNTAINS.

By B. Dunstan, F.G.S., Government Geologist.

The Glasshouse Mountains, situated near the coast to the north of Brisbane, were discovered by Captain Cook on his memorable voyage, the name being given, some say, because of their resemblance, in profile, to houses made of glass, others contending that Captain Cook had in his mind the outline of the factories in which glass is made, familiar objects to him in England in his younger days.

The first mountain to be seen in travelling from Brisbane on the North Coast Railway is a small prominence about 3 miles west of Caboolture, a town 31 miles from Brisbane; the last mountain being close to Cooran Railway Station at 90 miles. Within this 60-mile limit there are many peaks, but the principal ones are between Beerburrum, at 40 miles, and Landsborough, at 51 miles, the most important centre being Glass Mountains Station, at 44 miles from the metropolis.



MOUNT BEERBURRUM (920 FEET), ONE OF THE GLASSHOUSE MOUNTAINS.

The first conspicuous elevation is *Beerburum*, close to the station of that name, its height being 920 feet above sea level, and about 790 feet above the railway line.

Tibrogargan, 2 miles further on, quite close to the line on the west side, presents a

splendid view of a bold mountain. The height above sea level is 1,160 feet, and above the railway about 1,050 feet.

Coonowrin and *Beerwah* are next seen on approaching Glass Mountains Station, both forming very conspicuous features above the skyline to the west. Beerwah, shaped like a sugar loaf, is about 4 miles to the west of the railway, and is the highest peak in the Glasshouse group. Coonowrin, or Crookneck, is about 3 miles west of the line, its elevation being 1,170 feet above sea level. The name, pronounced Coo-now-rin, being suggested by its appearance to the blackfellows living in the vicinity. The mountain is very difficult to climb, and only a few venture-some mountaineers have succeeded in reaching the top.

Ngungun, 810 feet above sea-level, is about a mile to the west of Glass Mountains Station, the interest in it being somewhat dimmed on account of its close association with the two giants Beerwah and Crookneck.

Other members of the group include *Tunbubudla* (1,100 feet), 3 miles west of Beerburrum; *Miketeebumulgra* (about 750 feet), 5 miles south-west of Beerburrum; and *Ewen*, 1 mile west of Tibrogargan. These peaks, with others of less importance, cannot be examined during a short railway excursion.

The geological structure of the mountains is, of course, their most interesting feature, and perhaps this interest is accentuated by the fact that many theories have been advanced to account for their origin. Very little work of actual value, however, has been carried out in the way of explorations, and this little has not shown any conclusive results concerning their peculiar formation.

The country around the peaks is composed mostly of sandstones, with occasional beds of shale, grits, and shaly sandstones in which small insignificant coal seams occur. The fossils found in these rocks are limited to a few species of ferns, although sufficient to indicate their horizon to be *Lower Mesozoic*. Their exact position in the geological scale is a matter in which palaeontological investigations are now being made, but hitherto they have been assigned to what, in Eastern Australia, is known as the Trias-Jura System.

The mountains themselves are of trachyte, or of other rocks varying from this as a type, and many interesting occurrences are to be observed, particularly at Coonowrin, the precipitous sides of which are formed of gigantic columns of this igneous rock. Whether the necks of these mountains have been thrust upwards above the level of the sandstones, or

the easily weathered sandstones have been denuded away, leaving the necks exposed, is a problem on which we would like the geological members of the British Association to form an opinion.



COGNOWRIN, OR MOUNT CROOKNECK (1,170 FEET), ONE OF THE GLASSHOUSE MOUNTAINS.



General View of Gympie Goldfield, Gympie, N.C. Line.

No. 8.

VISIT TO GYMPIE GOLDFIELD.

	Leave Brisbane Central Station 8.35
	a.m., arrive Gympie 1.28 p.m.
SATURDAY,	Depart Gympie 1.32 a.m. Sunday,
29TH AUGUST,	30th August; arrive Brisbane
	6.10 a.m.

On arrival at Gympie, the visiting members will be the guests of the Mayor and Aldermen of the city, and will be shown over the works and mine of the Scottish Gympie Gold Mines, Limited, by Major D. E. Reid, D.S.O., General Manager.

In the evening the visitors will be the guests of the citizens at a *Conversazione* in the Town Hall.

GEOLOGICAL NOTES ON THE GYMPIE GOLDFIELD

By B. Dunstan, F.G.S., Government Geologist.

Gympie is an important town prettily situated amongst hills on the North Coast Railway, 106 miles from Brisbane. The goldfield has a productive area of about 6 square miles and since its opening in 1867 to the end of 1913, a period of 46 years, it has produced gold to the value of £11,418,521, this amount being about 10 per cent. of the whole mineral production of the State. Although gold is the only mineral wrought, manganese, antimony, and limestone occur in the district, and platinum has been found in some of the alluvial deposits.

The reefs are of quartz, sometimes accompanied by a "formation," occasionally with calcite present. They have a range in thickness from a few inches to several feet, underlie westerly about 30 degrees from the vertical, are only gold-bearing at or near their junction with black slate bands and beds, and then only when the slate contains graphite or anthracite. They are also barren where the slate is purple, from manganese, also where the reefs change from a westerly to an easterly underlie, where the strata dip westerly instead of easterly, where reversed faults break the reefs or the country, or where an intrusive rock or formation occurs between the quartz and the black slate. Sometimes large masses of gold-bearing quartz are found in the folds of the bedding planes of the rocks and in vertical cross reefs, good examples of which are seen in the Scottish Gympie Mine. The origin of the gold is obscure, but probably the enormous quantities of volcanic ejectamenta interbedded with the slates have been the source from which mineral waters have dissolved the gold and then deposited it in the adjacent reefs near the carbon-bearing slates.

• The Gympie Series of rocks, in descending order, is made up of *Limestones, Conglomerates* (with bands of graphitic slate); *First Bed of slate* (about 200 feet thick); *Volcanic tuffs, &c.*, ("Greywackes"); *Second Bed of slate* (a few feet thick); *Volcanic tuffs, &c.*, ("Greenstone"); *Third Bed of slate* (up to 400 feet thick);

Volcanic tuffs, &c., ("Diabase"). The total thickness of strata is about 2,700 feet, the general dip being 30 degrees easterly. These beds belong to the Permo-Carboniferous System, and are designated the Middle Gympie Series. Plant remains are unknown in the strata, but marine fossils are common, although not well preserved. Isolated granite boulders are to be seen in sections of the beds, transported here, it is inferred, by floating ice from granite country far away. A large detailed geological map of the field has recently been completed by the Queensland Geological Survey, and shows all the mines, reefs, and geological features, an underground geological survey for the purpose of making sectional plans being now in progress.



PAWPAW APPLE TREE.



General View of Mount Morgan Gold and Copper Mine.

No. 9.

VISIT TO THE MOUNT MORGAN GOLD
AND COPPER MINE, MOUNT MORGAN,
CENTRAL QUEENSLAND.

Leave Brisbane Central Station
10.25 p.m.; arrive Rockhampton
4 p.m., Monday, 31st
August.

Leave Rockhampton 8.38 a.m., Tuesday,
1st September; arrive
Mount Morgan 10.10 a.m.

Tour through Mine and Works.

SUNDAY,
30TH AUGUST. Leave Mount Morgan 8.5 a.m., Wednesday,
2nd September; arrive Rockhampton 9.27 a.m.,
Wednesday, 2nd September.

Trip by motor-car to Lake's Creek
Meat Works.

Leave Rockhampton 12 noon, 2nd
September; arrive Brisbane
6.10 a.m., Thursday, 3rd September.

Embark s.s. "Montoro" for the
East.

GEOLOGICAL NOTES ON THE MOUNT MORGAN
GOLDFIELD.

By B. Dunstan, F.G.S., Government Geologist.

Mount Morgan is located close to a small stream called the Dee River, about 23 miles south-westerly from Rockhampton, and 420 miles by rail from Brisbane. The town and surrounding places have a population of about 12,000 inhabitants, sustained almost exclusively by the

operations of the Mount Morgan Gold Mining Company. Gold was found in the district in 1865, but the discovery of gold in this locality took place in 1882; subsequently a square mile of freehold land was bought by Morgan Brothers for £640, and it is on this area that all the mining developments have taken place.

The Company owning the mine at the present time is made up of 1,000,000 shares, and has a nominal capital of £1,000,000, but the market value at the present time is £2,600,000. Once in its career the market value of the shares reached about £20,000,000.

The geological formations about the Mount comprise (1) a series of granitic and porphyritic rocks, of indefinite age, in association with (2) Carboniferous quartzites, jaspers, shales, limestones, &c., much disturbed and altered, both of these series being intruded by (3) Carboniferous andesites, porphyries, diorites, and other basic and acidic dyke rocks, and overlaid, in part, by (4) Mesozoic shales, tuffs, and sandstones, and (5) recent deposits of alluvium.

The mineral deposits, which are of very irregular occurrence, occur in the quartzites close to granitic masses, and are influenced more or less by their proximity to this rock and to the intrusive dykes. A geyser theory was supposed to account for the presence of the gold and other minerals, but this idea is no longer tenable, the

mineral deposits now being considered to be the result of alteration, impregnation, and partial replacement of the sedimentary rocks.

The ore, almost exclusively, is made up of siliceous copper and iron sulphides, which, near the surface, have been oxidised and partly leached away, the gold being left behind in a free state, generally in a porous ferruginous quartz.

The mine itself, with its extensive surface and underground workings, is a very interesting one to examine, while the various up-to-date machines and appliances in use for mining and hauling will have an attraction to those acquainted with the engineering branch of mining. The first metallurgical plant consisted of a twenty-head battery for saving free gold, which afterwards was augmented by a small barrel chlorination plant. Large chlorination vats with roasting and smelting furnaces were then introduced, and these in their turn have been "scrapped" and superseded by gigantic melting furnaces, with all the latest appliances for handling large quantities of molten metal and slag.

The copper and gold, in the form of matte, is not refined at Mount Morgan, but is taken to Port Kembla, in New South Wales, where the gold is separated from the copper by electrolytic treatment, the two products being pure gold and electrolytic copper.

To the close of 1913, Mount Morgan has produced gold and copper to the value of £19,734,630, this being 18 per cent. of the total mineral output of the whole State since the beginning of mining. The future prospects of the mine are excellent, under the able management of Mr. B. Magnus, and a regular output of copper and gold can be seen ahead for many years to come.

An account of Mount Morgan would not be complete without reference to Captain Richards, the ex-manager, who has been so closely connected with its history and development, and whose judgment and foresight have been so instrumental in making this the most important gold mine in the world.



PINEAPPLES FOR MARKET, N.C. LINE.



BRIGALOW SCRUB INFESTED WITH PRICKLY PEAR, WESTERN
QUEENSLAND.

No. 10.

TRIP TO DULACCA PRICKLY-PEAR EXPERI-
MENTAL STATION, DULACCA, WESTERN
QUEENSLAND.

Leave Brisbane Central Station 3.0
p.m.; arrive Dulacca 2.5 a.m.,
Saturday, 29th August.

FRIDAY,
28TH AUGUST,

Leave Dulacca 2.15 a.m., Sunday,
30th August; arrive Too-
woomba 12 30 p.m.

Leave Toowoomba 4.53 p.m.; arrive
Brisbane 8.53 p.m., Sunday,
30th August.

To almost every country in the habitable
globe has been decreed a certain soil affliction,
but in no country have the ravages of such a
pest as the Prickly-pear been so realistically

demonstrated as in Queensland. Indeed, the matter of its extermination has now resolved itself into a national problem.

Prickly-pear was first introduced to Australia by Governor Phillip from Rio de Janeiro, Brazil, in 1787. His main purpose was to use the plant as a nursery in Sydney, for the rearing and development of the commercial cochineal insect—*Coccus cacti*. In 1839, it was taken as a beautiful and rare garden plant from Sydney to Scone, New South Wales, from whence it was introduced to the Warwick and Toowoomba districts, Queensland, in 1842. From this it has grown until now it is estimated that there are over 15,000,000 acres of arable land afflicted by the pest in this State alone. Among the species of pear which are most prevalent in Queensland the following are the most in evidence:—

- (1) *Opuntia inermis*.—The most common.
- (2) *O. monacantha*.—A species of tree pear growing along the Upper Suttor River, North Queensland, and other places.

The Prickly-pear Experimental Station is situated about three-fourths of a mile from the Railway Station, which is 257 miles westerly, by rail, from Brisbane. The area of the Station comprises some 645 acres of densely infected pear country, and the operations for the eradication of the pest are under the personal supervision of Jean White, D.Sc. These operations

have been confined almost exclusively to two channels of investigation: (1) the observation of the effects of various chemical substances applied to the pear plants by different methods; (2) the acclimatisation and propagation of the wild cochineal insects forwarded to Queensland from Ceylon and South Africa by the Prickly-pear Travelling Commission which recently toured the world.

Interstate Train Arrangements.

Sydney—Brisbane.

WEDNESDAY,
26th AUGUST.

Sydney, depart 12.40 and 1.50 p.m.

THURSDAY,
27th AUGUST.

Wallangarra, arrive 7.25 and 8.5 a.m.

Wallangarra, depart 7.50 and 8.30 a.m.

Brisbane, arrive 5.33 and 6.15 p.m.

The train will run in two divisions.

Breakfast at Wallangarra, and Lunch at Toowoomba.

Brisbane—Sydney (Return Trip).

TUESDAY,
1st SEPTEMBER.

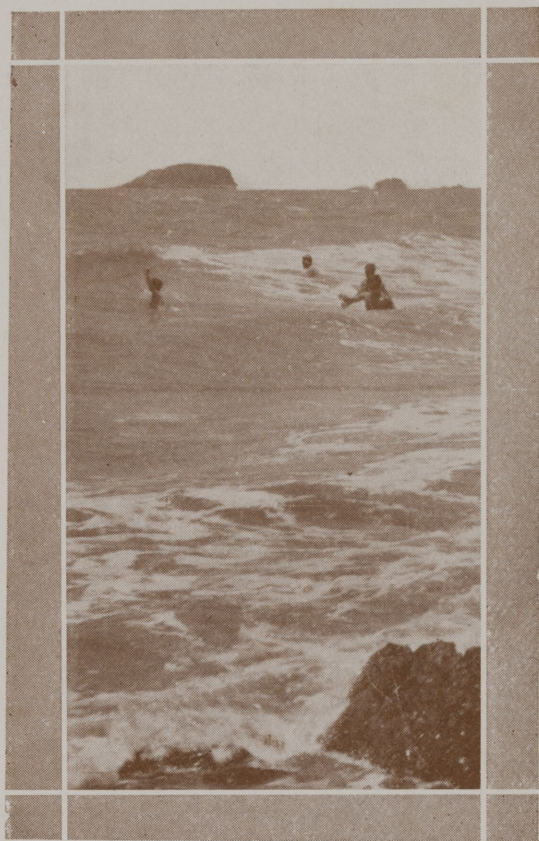
Brisbane, depart 8.30 a.m.

Wallangarra, arrive 6.35 p.m.; depart
7.0 and 7.30 p.m.

One train to Queensland border.

Lunch at Toowoomba, and Dinner at Wallangarra.

919.43
QUE
Parr



Bon Voyage.

*Issued by The Queensland Government
Intelligence and Tourist Bureau,
Corner Queen and George Streets, Brisbane.*

